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EXAMINER

ANTONIENKO, DEBRA L

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/768,758	Applicant(s) BLACKMON, THEODORE THOMAS	
	Examiner Debra Antonienko	Art Unit 3689	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. This is a Final Office Action in response to communications received 15 December 2009, wherein:
Claims 8 and 17 have been amended; and
Claims 1-40 are pending.

Response to Amendment

2. Amendments to claims 8 and 17 are sufficient to overcome improper grammar objections set forth previously.

Response to Arguments

3. As to Applicant's remarks regarding the limitations *to create a work package in the computerized simulation model, the work package comprising the at least one constructible element and the at least one work step for the at least one constructible element; and sequencing a plurality of work packages for release to work crews*, the obviousness rejection is maintained.

As referenced, Schwegler '468 in Figure 4 illustrates Component Concrete Columns – NE, Activity Pour, Start/End Dates. Schwegler '468 in Figure 7a illustrates a 3D wall structure with Form, Rebar, Close/Pour instructions with Start/End Dates. That Schwegler/Schwegler '468 do not use the phrases *work package* or *constructible element* or *work step* does not alter the steps of the method or the structure of the system. Therefore, such a difference does not effectively serve to patentably distinguish the claimed invention over the prior art.

Furthermore, regarding the limitation of *sequencing a plurality of work packages for release to work crews*, as referenced, Schwegler states that *all project and construction manager should*

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have project information available at the right level of detail and scope... staging and sequencing of work enables efficient use of resources and minimizes the waste of labor and materials (page 11/6, section 1.3). As well, Figure 12 of Schwegler '468 illustrates *Schedule Data, Link Activities to Schedule Items, Schedule Data with Activity States*. Also, Figure 7a, as noted above, illustrates a 3D wall structure with Form, Rebar, Close/Pour instructions with Start/End Dates. Therefore, the construction task or job of what is to be constructed, what materials or resources are needed, and steps that need to be taken to complete the task are sequenced.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1, 2, 4, 6-8, 13-17, 19-22, 26-40** are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwegler et al., "New Information Technology Tools Enable Productivity Improvements," 2000 North American Steel Construction Conference Proceedings, 2000, pages 11/3-11/20 (hereinafter Schwegler) in view of Schwegler, Jr. et al., U.S. Patent Number 7,042,468 B2 (hereinafter Schwegler '468).

Regarding **Claims 1, 17, 34, 39**, Schwegler teaches managing a construction project comprising: generating, by one or more central processor units (CPUs) executing an application, a computerized simulation model for the construction project representing project materials in the construction project (page 11/6, section 1.3; Figure 1); mapping the project

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materials represented in the computerized simulation model into constructible elements (page 11/6, ¶4; effective staging and sequencing of work).

Schwegler '468 teaches displaying the constructible elements as three-dimensional objects in a graphical user interface (column 6, lines 46-67; Figure 8). Schwegler teaches 3D/4D simulation modeling for project planning, design and construction management (page 11/5, 1.2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the display of constructible elements in 3D in order to better communicate the design of a construction project.

Schwegler '468 further teaches determining at least one work step for each constructible element (column 2, lines 22-39). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify and include in Schwegler's simulation the capability of Schwegler '468 to break down a project into smaller elements in order to manage the project efficiently and effectively. It is well known to break down large projects into smaller, more manageable segments in order to complete the project.

Schwegler '468 further teaches receiving a selection in the graphical user interface of at least one constructible element represented as a three-dimensional object to create a work package in the computerized simulation model, the work package comprising the at least one constructible element and the at least one work step for the at least one constructible element (column 5, line 53 – column 6, line 67; Figure 4; Figure 8; Figure 12, element 204, *select 3D component*).

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Schwegler further teaches sequencing a plurality of work packages for release to work crews (page 11/6, section 1.3, *all project and construction manager should have project information available at the right level of detail and scope... staging and sequencing of work enables efficient use of resources and minimizes the waste of labor and materials*).

Regarding Claims 2 and 19, Schwegler further teaches organizing the constructible elements into construction areas in the computerized simulation model (Figure 2).

Regarding Claims 4 and 20, Schwegler further teaches organizing the constructible elements into systems for testing and turnover in the computerized simulation model (Figure 2; page 11/9, section 2.3; page 11/11, section 3.1.2).

Regarding Claims 6, 26, 35, and 40, Schwegler further teaches generating a visual display of the computerized simulation model (page 11/5, section 1.2).

Regarding Claims 7, 27, and 36, Schwegler further teaches generating an interactive three-dimensional graphical display of the computerized simulation model (page 11/5, section 1.2; page 11/10, section 2.5).

Regarding Claims 8, 21, 22, and 38, Schwegler '468 further teaches wherein receiving a selection in the graphical user interface of the at least one constructible element further comprises allowing a user to point-and-click on the at least one constructible element in a visual display of the computerized simulation model to select the at least one constructible element (column 5, line 53 – column 6, line 67, *Drag and drop supports linkage to CAD Components*).

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Schwegler teaches links between any level of detail of the product and process models (page 11/5, section 1.2) and links between 3D components and activities (page 11/10, section 2.5). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide point-and-click capabilities in order to manage the project efficiently and effectively.

Regarding Claims 13, 28, and 37, Schwegler teaches an interactive three dimensional simulation (page 11/5, section 1.2).

Regarding Claim 14, Schwegler teaches wherein sequencing a plurality of work packages for release to work crews (page 11/6, section 1.3, *all project and construction manager should have project information available at the right level of detail and scope... staging and sequencing of work enables efficient use of resources and minimizes the waste of labor and materials*).

Schwegler '468 teaches receiving a selection of the work packages in a visual display of the computerized simulation model via a graphical user interface (Figures 1, 7a, and 7b). It would have been obvious to one of ordinary skill in the art at the time of the invention to sequence tasks accordingly in order to manage the project efficiently and effectively.

Regarding Claims 15 and 29, Schwegler teaches assigning the work package to a work crew in response (page 11/6, section 1.3, *all project and construction manager should have project information available at the right level of detail and scope*). Schwegler further teaches use of the Internet which *allows parties who are given project access to the 4D information to create, revise, and view 4D models. This gives the team members direct access to the 4D project database* (page 11/10, first bullet). Schwegler '468 teaches receiving a selection of the work

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package in a visual display of the computerized simulation model via a graphical user interface (Figures 1, 7a, and 7b). It would have been obvious to one of ordinary skill in the art at the time of the invention to assign tasks accordingly in order to manage the project efficiently and effectively.

Regarding Claim 16, Schwegler teaches accessing engineering data for the construction project in a database, wherein generating a computerized simulation model is based on the engineering data; and accessing manufacturing data for the construction project in an other database, wherein mapping the project materials into constructible elements is based on the manufacturing data (page 11/10, sections 2.4 and 2.5; page 11/17, section 6.3).

Regarding Claim 30, Schwegler further teaches a reprioritization module configured to reprioritize the sequence of the work packages (page 11/10, section 2.5; re-sequence).

Regarding Claim 31, Schwegler further teaches analyzing spatial constraints between components and activities (page 11/11, section 3.1.3).

Regarding Claim 32, Schwegler further teaches a verification module configured to analyze resource constraints for the construction project to determine whether a work crew can execute the work package subject to the constraints (page 11/9, section 2.2; verify whether the design is buildable; page 11/15, section 5.2; verification of constructability and verification of site constraints in design and schedule).

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Regarding Claim 33, Schwegler does not explicitly teach a converter module configured to convert data accessed from an external database into a common format for use in a matching module. However, Schwegler does disclose use of the web (page 11/10, section 2.4), the use of e-commerce (page 11/17, section 6.5), and the importance of information exchange (page 11/16, sections 6.1 and 6.2). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the capability of accessing data from other databases in order to facilitate project management.

6. **Claims 3, 5, 9-12, 18, and 23-25** are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwegler in view of Schwegler '468 and further in view of Kroeger, U.S. Patent Application Publication Number 2002/0165723 A1 (hereinafter Kroeger).

Regarding Claims 3 and 18, neither Schwegler nor Schwegler '468 explicitly teach organizing the constructible elements into construction crafts in the computerized simulation model. However, Kroeger discloses organizing the construction into the different crafts (Table 1A). It would have been obvious to one of ordinary skill in the art at the time of the invention to separate the elements into the different crafts in order to be able to hire the particular subcontractor to do the job. It is well known that subcontractors are by craft, i.e., electrical, plumbing, carpentry.

Regarding Claim 5, neither Schwegler nor Schwegler '468 explicitly teach prioritizing procurement of the constructible elements based on target installation dates of the constructible elements. However, Kroeger discloses prioritizing procurement based on target installation dates ([0005]). It would have been obvious to one of ordinary skill in the art at the time of the

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invention to prioritize procurement based on target installation dates in order to save time and money. This is well known.

Regarding Claims 9 and 23, neither Schwegler nor Schwegler '468 explicitly teach providing status information. However, Kroeger discloses providing status information ([0153]). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide status information of tasks in order to manage the project efficiently and effectively.

Regarding Claim 10, Kroeger further discloses keeping track of tasks completed ([0154]). It would have been obvious to one of ordinary skill in the art at the time of the invention to keep track of when tasks are completed in order to manage the project efficiently and effectively. This is well known.

Regarding Claims 11 and 24, Kroeger further discloses time estimates for tasks ([0113]; [0187]). It would have been obvious to one of ordinary skill in the art at the time of the invention to create time estimates of tasks in order to manage the project efficiently and effectively. This is well known.

Regarding Claims 12 and 25, Kroeger further discloses cost estimates for tasks ([0113]; [0174]; Table 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to create cost estimates of tasks in order to manage the project efficiently and effectively. This is well known.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Debra Antonienko whose telephone number is 571-270-3601. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janice Mooneyham can be reached on 571-272-6805. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you

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would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Da

/Janice A. Mooneyham/
Supervisory Patent Examiner, Art Unit 3689